

L Number	Hits	Search Text	DB	Time stamp
1	3907	((fax facsimile (image near5 communicat\$3)) with protocol	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/05/21 09:15
7	209	calling same ((fax facsimile (image near5 communicat\$3)) with protocol)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/05/21 09:16
13	1143	(stor\$3 sav\$3 keep\$3 load\$3) same ((fax facsimile (image near5 communicat\$3)) with protocol)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/05/21 09:18
19	91	(calling same ((fax facsimile (image near5 communicat\$3)) with protocol)) and ((stor\$3 sav\$3 keep\$3 load\$3) same ((fax facsimile (image near5 communicat\$3)) with protocol))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/05/21 09:18

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the facsimile correspondence procedure which can shorten communication time.

[0002]

[Description of the Prior Art] Drawing 5 which shows the standard protocol procedure of the conventional facsimile in G3 / example of G two-set procedure explains. Off-hook is carried out by the call origination office side, and communication is started by the handshake of CNG (1100Hz\*\*38Hz) and CED (2100Hz\*\*15Hz) after a dialing start. It is the signal which tells a called station side about CNG having been in the send state here, and CED is a signal which tells a call origination office side about having changed into the receiving state. Then, it is transmitted until a preamble, and NSF (it is a signal for telling information, such as a kind of modem, I/O speed, and record paper width, as a function of a self-opportunity to a call origination office at the time of reception, and is the thing of the specification of our company), CSI (identification number of the self-opportunity about which a call origination office side is told at the time of reception) and DIS (it is the thing of G3 specification although it is the same as that of In the example of illustration, it is repeated twice. Then, a preamble, and NSS (it is the signal which tells a called station side about whether it transmits by --, such as what transmitting condition --, for example, modem speed, I/O speed, and manuscript width of face, at the time of transmission, and is the thing of the specification of our company), TSI (identification number of the self-opportunity about which a called station side is told at the time of transmission) and DCS (although it is the same as that of NSS, it is the thing of G3 specification) Thereby, the procedure during transmission and reception is completed and it goes into training of a modem henceforth.

[0003] That is, in a fast modem, the ecad equalizer which operates so that the equalizer of an amendment sake may be needed, distortion of a transmission line may generally be followed at the difference in the deformation amount by the difference in a connection state and the loose distorted change after connection and they may be negated is used. In advance of data transmission and reception, as for such an ecad equalizer, training for equalizer adjustment is performed as training of a modem. As a modem, it is CCITT advice V27ter here. There are a modem and CCITT advice V29 modem. V27ter A modem is a modem of 8 phase differential phase modulation (PSK) method standardized in order to transmit by 4800 bit/s with a general public line network, and operation of 2400 bit/s is possible for it by fall back (miscellaneous function which backs up a basic function). V29 modem is a modem of the quadrature amplitude modulation (QAM) method of 9600 bit/s which meant using it for a point-to-point four-wire system leased-telephone-circuit type circuit, and was standardized, and its operation of 7200 bit/s and 4800 bit/s is possible also for this by fall back. Moreover, at the time of modem training, TCF (signal for a modem training check) is taken out, and CFR (signal which tells a call origination office side about modem training having been successful), or FIT (signal which tells a call origination office side about what modem training went wrong) is outputted. Lithograph rhe NINGU is carried out at the time of failure. And it shifts to transmission of data, and a recovery.

[0004]

[Problem(s) to be Solved by the Invention] Thus, if it is in the former, both call origination office and called station sides also have a handshake function about information, such as a model check, modem speed, manuscript width of face, and linear velocity, the time for it other than the time which original picture transmission takes will surely be needed, and the charge of use of a public line will become high.

[0005] That is, if it is when the partner who communicates beforehand when the standard procedure of a protocol is seen understands, it is not necessary to send to DCS from the preamble by the side of a call origination office with the preamble by the side of a called station to DIS. If it puts in another way, the transmission time for it always is not required, and is omitted.

[0006] Similarly, from training, CFR omits, if operation of a modem is guaranteed certainly. Or time until it carries out a lithograph rhe NINGU start from training or later at least is not [ that what is necessary is just to train the modem ] indispensable, performing data transmission.

[0007] Furthermore, since a modem operates from the start whenever an always new signal enters, before it goes into a stable state, it will have required remarkable time.

[0008]

[Means for Solving the Problem] In the facsimile correspondence procedure which encodes and transmits a picture and alphabetic information to a called station through a public line network in invention according to claim 1 from a call origination office It has a means to make the telephone number of the called station which communicates the specific discernment means ID, and to regenerate this ID and the facsimile functional content of the called station. Communication of CNG and CED which are a communication standard procedure between a call origination office and a called station is preceded. Communicate a predetermined signal between a call origination office and a called station, and communicative success or failure are checked. According to the usual facsimile-transmission procedure which includes the aforementioned communication standard procedure when communication by this predetermined signal is not materialized, it communicates between a call origination office and a called station. When communication by the predetermined signal was materialized, the usual facsimile-transmission procedure is skipped and it was made to make it shift to the protocol control which is the procedure of lithograph rhe NINGU of a modem.

[0009] In invention according to claim 2, the shift place of the default of the usual facsimile-transmission procedure was replaced with the shift to the protocol control which is the procedure of lithograph rhe NINGU of the modem of invention according to claim 1, and it considered as the shift to the protocol control which is training of a modem / procedure of TCF.

[0010] In these invention in invention according to claim 3 At the time of the dialing of a call origination office, the telephone number of a called station as a specific discernment means ID Modem speed, The facsimile functional content by the side of called stations, such as manuscript width of face and linear density, is made to regenerate. in invention according to claim 4 A means to discriminate predetermined signals other than CNG, and the means to which predetermined signals other than CED are made to transmit to a call origination office side were prepared in the called station side, and transmission sequence about the mutual predetermined signal between a call origination office side and a called station side and its discernment sequence were further made arbitrary by invention according to claim 5.

[0011] Moreover, in invention according to claim 6, the shift to lithograph rhe NINGU of a modem or training by the skipped procedure is faced, and the kind of modem is modem V27ter. A modem V29 is discriminated and was made to carry out recovery operation according to the kind of discriminated modem.

[0012] Furthermore, when it judged that whether this tap value that held the tap value of the equalizer in a modem when the modem by the side of the called station which restores to the transmitted facsimile signal in invention according to claim 7 was in a normal communication state, and was held when new communication was started is used judges and uses it, this tap value is left and it was made to make a modem result in normal operation.

[0013]

[Function] When the partner understands mutually between the call origination office and the called station Memorize and reproduce the facsimile functional content as a specific discernment means ID, use the telephone number of a called station for communications control, and by the handshake only using the predetermined signal By skipping the usual facsimile-transmission procedure and making it shift to the protocol control which is the procedure of lithograph rhe NINGU of a modem or training / TCF It becomes what can simplify a communication procedure, the information needed can be transmitted promptly, and reduction and a transmission-efficiency rise of a public line network of the charge of use are secured.

[0014] Especially, according to invention according to claim 7, a modem does not always need to operate from the start, whenever a new signal enters, by using the tap value of the held equalizer, can make a modem able to train efficiently and can be stabilized for a short time.

[0015]

[Example] One example of this invention is explained based on drawing 1 or drawing 4 . The same portion as the portion shown by drawing 5 is shown using the same sign. Drawing 1 shows the protocol procedure of this example method replaced with this drawing 5 method, using the drawing 5 method as the base.

[0016] First, in the case of the called station understood beforehand, if it is in this example, when carrying out dialing in a call origination office, as shown in processing \*\*, it has the regeneration function which will reproduce it and will check the telephone number of the called station if the facsimile functional content by the side of called stations, such as modem speed, manuscript width of face, and linear density, is memorized as a specific discernment means ID and it has already memorized.

[0017] Subsequently, in advance of communication of CNG and CED which are a communication standard procedure, as processing \*\* shows, the handshake which communicates the predetermined signals f1 and f2 between a call origination office and a called station is performed. You may make it substitute for the conventional BPF (band-pass filter) in this case using a signal (f1=2100Hz and f2=1100Hz). Or what is necessary is to be good also as another signalling frequency and just to, have the generation means and its detection means of signalling frequency mutually in short. It sets to a called station side and they are predetermined signals f1 other than CNG. They are predetermined signals f2 other than CED to a means [ to discriminate ] side, and a call origination office side. What is necessary is just to establish the means made to transmit. Moreover, as discernment of such predetermined signals f1 and f2, and transmission sequence, it is f1 at a call origination office side in the example of illustration. It is f2 at a call origination office side after sending out. Although it is made to detect It sets to within a time [ which is shown by processing \*\* ], and is f2 in a call origination office. The detected late-coming call office side to f1 It is good also as reverse so that it may send out (the former is more more desirable).

[0018] Next, as shown in processing \*\*, the success or failure of communication by the predetermined signals f1 and f2 are checked. When this communication is not materialized, as shown in processing \*\*, according to the usual facsimile-transmission procedure which begins from communication of CNG and CED which were mentioned above, it communicates between a call origination office and a called station.

[0019] On the other hand, when communication is materialized as a result of the judgment of processing \*\*, the usual facsimile-transmission procedure is skipped, the processing (processing \*\*) which shifts to the protocol control which is training of a modem / procedure of TCF or training / TCF is also omitted, and processing (processing \*\*) which shifts to the protocol control which is the procedure of lithograph rhe NINGU of a modem is performed.

[0020] As a modem currently used here by the called station side, it is modem V27ter. Since there may be a modem V29, it discriminates whether which modem is used by processing \*\*, and training operation according to the modem of the discriminated kind is made to perform in advance of training or lithograph rhe NINGU shift.

[0021] Modem V27ter / example of discernment processing of V29 is shown in drawing 2 . This example of processing uses the high filter of Q as BPF (band-pass filter) which detects a carrier frequency, detects 1800Hz (or 1700Hz or a non-signal), and judges any they are. It is carried out in order after a judgment about the segments 2-5 into which training processing was divided according to the training sequence of each modem, and TCF is outputted.

[0022] About the procedure after training, it is good to control in short, to be in a stable state as promptly as possible, since it is training of a modem. Modem composition and operation for that are explained with reference to drawing 3 and drawing 4 . Drawing 3 shows the example of receive-section composition of the modem (modem V27ter and any of V29 are sufficient) of PSK or a QAM method. That is, in addition to the recovery system composition which restores to the received data based on the band-pass analog filter 1, A/D converter 2, AGC circuit 3, the complexification processing circuit 4, the automatic equalization machine 5, the phase simulation circuit 6, the judgment circuit 7, the P/S conversion circuit 8, and descrambler 9 as common knowledge composition to reproduction data, memory 10 is added to the aforementioned automatic equalization machine 5. This memory 10 changes the content of the automatic equalization machine 5 to this memory 10 content in an instant, when the tap value (coefficient) of the automatic equalization machine 5 at the time of communication by the normal state is held and new communication is started.

[0023] That is, as shown in drawing 4 , when the modem by the side of the called station which restores to the transmitted facsimile signal is in a

normal communication state, the tap value of the automatic equalization machine 5 is held in memory 10 (when the result which performed an equalizer coefficient setup by the usual method, and trained every segment 2-5 is normal). Subsequently, although it usually judges by whether it is a method, and it will usually perform whether this status value is used through a coefficient setup of the automatic equalization machine 5 as mentioned above if it is not usually a method when new communication is started. Usually, if it is a method, as a coefficient of the automatic equalization machine 5, it will call from memory 10 (a trigger signal is generated by the segment 1 detection under training), and a coefficient setup is performed by exchanging in an instant, and it shifts to training as it is. Therefore, whenever a new signal enters in a modem, it always is not necessary to perform operation about a coefficient setup, and training of a modem can carry out efficiently in a short time.

[0024]

[Effect of the Invention] The point that it always is not necessary to perform all the standard procedures of a protocol when the partner who communicates beforehand understands, as this invention was mentioned above is noted. Memorize and reproduce the facsimile functional content as a specific discernment means ID, use the telephone number of a called station for communications control, and by formation of the handshake only using the predetermined signal. Since the usual facsimile-transmission procedure is skipped and it was made to make it shift to the protocol control which is the procedure of lithograph rhe NINGU of a modem or training / TCF. A communication procedure can be simplified effectively, the information needed can be transmitted promptly, and reduction and a transmission-efficiency rise of a public line network of the charge of use can be secured.

[0025] Especially, according to invention according to claim 7, a modem does not always need to operate from the start, whenever a new signal enters, by using the tap value of the equalizer made to hold in a normal communication state, it can make a modem able to train efficiently in a short time, can be stabilized, and can secure much more transmission-efficiency rise.

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**CLAIMS**

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[Claim(s)]

[Claim 1] In the facsimile correspondence procedure which encodes and transmits a picture and alphabetic information to a called station through a public line network from a call origination office It has a means to make the telephone number of the called station which communicates the specific discernment means ID, and to regenerate this ID and the facsimile functional contents of the called station. Communication of CNG and CED which are a communication standard procedure between a call origination office and a called station is preceded. Communicate a predetermined signal between a call origination office and a called station, and communicative success or failure are checked. According to the usual facsimile-transmission procedure which includes the aforementioned communication standard procedure when communication by this predetermined signal is not materialized, it communicates between a call origination office and a called station. The facsimile correspondence procedure characterized by skipping the usual facsimile-transmission procedure and making it make it shift to the protocol control which is the procedure of lithograph the NINGU of a modem when communication by the predetermined signal is materialized.

[Claim 2] In the facsimile correspondence procedure which encodes and transmits a picture and alphabetic information to a called station through a public line network from a call origination office It has a means to make the telephone number of the called station which communicates the specific discernment means ID, and to regenerate this ID and the facsimile functional contents of the called station. Communication of CNG and CED which are a communication standard procedure between a call origination office and a called station is preceded. Communicate a predetermined signal between a call origination office and a called station, and communicative success or failure are checked. According to the usual facsimile-transmission procedure which includes the aforementioned communication standard procedure when communication by this predetermined signal is not materialized, it communicates between a call origination office and a called station. The facsimile correspondence procedure characterized by skipping the usual facsimile-transmission procedure and making it make it shift to the protocol control which is training of a modem / procedure of TCF when communication by the predetermined signal is materialized.

[Claim 3] The facsimile correspondence procedure according to claim 1 or 2 characterized by making the facsimile functional contents by the side of called stations, such as modem speed, manuscript width of face, and linear density, regenerate considering the telephone number of a called station as a specific discernment means ID at the time of the dialing of a call origination office.

[Claim 4] The facsimile correspondence procedure according to claim 1 or 2 characterized by preparing a means to discriminate predetermined signals other than CNG, and the means to which predetermined signals other than CED are made to transmit to a call origination office side in a called station side.

[Claim 5] The facsimile correspondence procedure according to claim 4 characterized by making arbitrary transmission sequence about the mutual predetermined signal between a call origination office side and a called station side, and its discernment sequence.

[Claim 6] The shift to lithograph the NINGU of a modem or training by the skipped procedure is faced, and the kind of modem is modem V27ter. Facsimile correspondence procedure according to claim 1 or 2 characterized by discriminating a modem V29 and carrying out recovery operation according to the kind of discriminated modem.

[Claim 7] The facsimile correspondence procedure according to claim 1 or 2 characterized by leaving this tap value and making it make a modem result in normal operation when it judges that whether this tap value that held the tap value of the equalizer in a modem when the modem by the side of the called station which restores to the transmitted facsimile signal was in a normal communication state, and was held when new communication was started is used judges and uses it.

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